CCA GCA ACC AAT GAT GCC CGT T-TAMRA-3'
CA GCA ACC AAT GAT GCC CGT T-TAMRA-3'

CCA GCA AGC ACT GAT GCC TGT T-TAMRA-3'
CA GCA AGC ACT GAT GCC TGT T-TAMRA-3'

Fig. 1A

Fluorescent Dyes

	Absorbance Maxima	Emission Maxima
Fluorescein	494nm	525nm
Tetrachloro fluorescein	521nm	536nm
TAMRA	565nm	580nm

Fig. 1B

Cleaved Fragments:

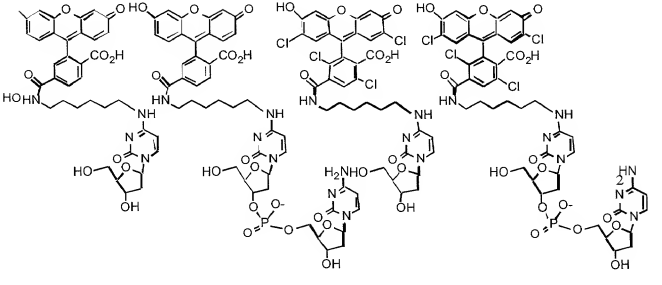


Fig. 1C

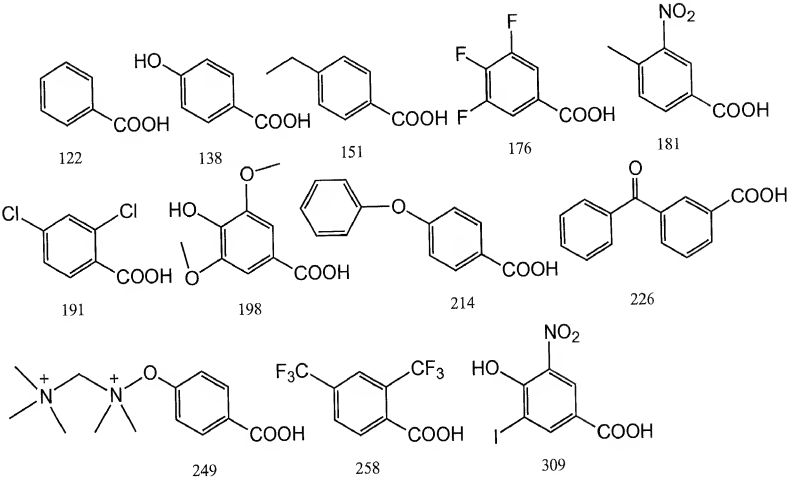

COOH
HO
F
NO2
Cl
O
122
138
151
176
181
191
198
214
226
249
258
309
F3C
CF3
I

Fig. 2

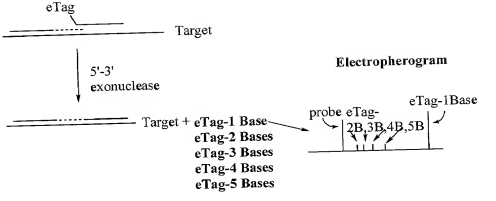

eTag
Target
5'-3'
exonuclease
Target + eTag-1 Base
eTag-2 Bases
eTag-3 Bases
eTag-4 Bases
eTag-5 Bases
Electropherogram
probe eTag-
2B,3B,4B,5B
eTag-1Base

Fig. 3A

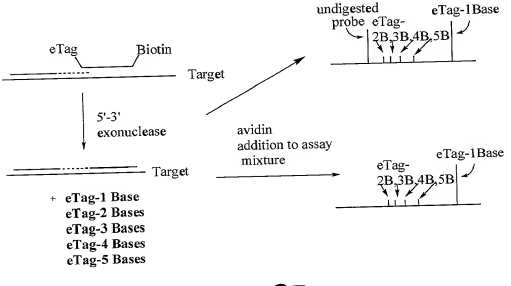

undigested
probe
eTag-
2B,3B,4B,5B
eTag-1Base
eTag
Biotin
Target
5'-3'
exonuclease
avidin
addition to assay
mixture
Target
+ eTag-1 Base
eTag-2 Bases
eTag-3 Bases
eTag-4 Bases
eTag-5 Bases
eTag-
2B,3B,4B,5B
eTag-1Base

Fig. 3B

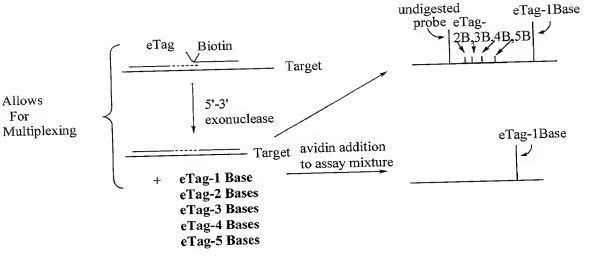

undigested probe
eTag-2B,3B,4B,5B
eTag-1Base
eTag
Biotin
Target
Allows For Multiplexing
5'-3' exonuclease
Target
avidin addition to assay mixture
eTag-1Base
+
eTag-1 Base
eTag-2 Bases
eTag-3 Bases
eTag-4 Bases
eTag-5 Bases

Fig. 3C

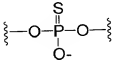

S
O
P
O
O-

Fig. 3D

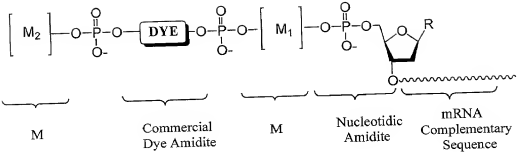

M2
DYE
M1
R
M
Commercial Dye Amidite
M
Nucleotidic Amidite
mRNA Complementary Sequence

Fig. 4

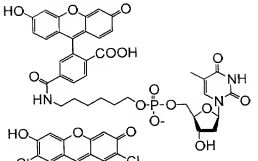
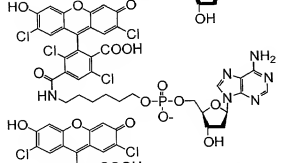
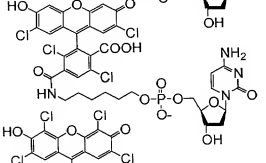
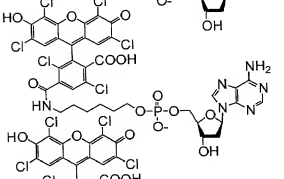
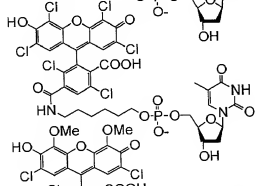
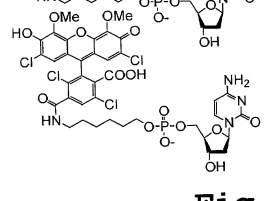
e-tag Reporter	Elution Time on CE, min	Mass
	6.4	778
	7.1	925
	7.3	901
	7.7	994
	8.0	985
	9.25	961

Fig. 5

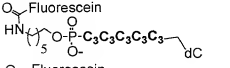
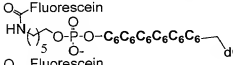
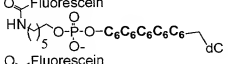
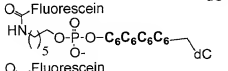
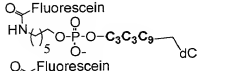
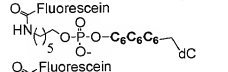
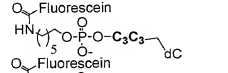
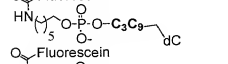
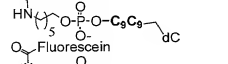
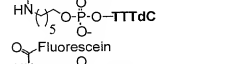
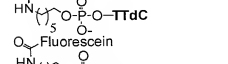
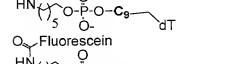
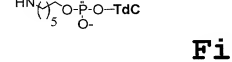
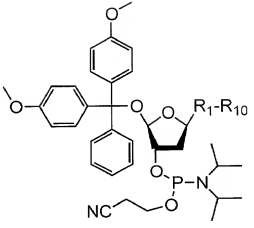
e-tag Reporter	Charge	Elution Time, min
	-8	12.1*
	-9	12.7
	-8	12.8
	-7	13.1
	-6	13.0
	-6	13.4
	-5	12.8*
	-5	13.2*
	-5	14.8
	-6	17.3
	-5	17.0
	-4	15.2*
	-4	16.5

Fig. 6



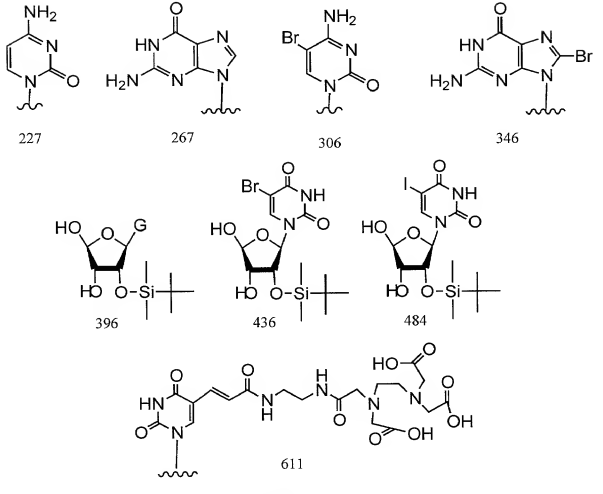


Fig. 7

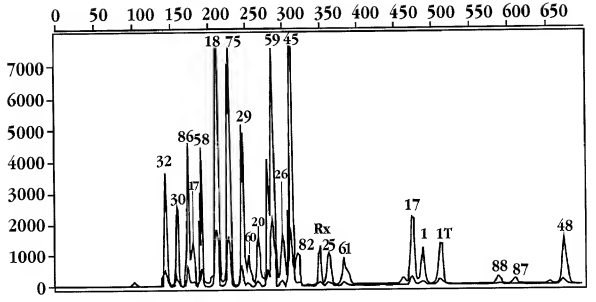

0 50 100 150 200 250 300 350 400 450 500 550 600 650
7000
6000
5000
4000
3000
2000
1000
0
18 75
59 45
29
86 58
32
17
30
26
20
69
Rx
82 25 61
17
1 1T
48
88 87

Fig. 8

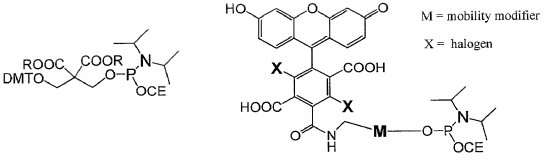
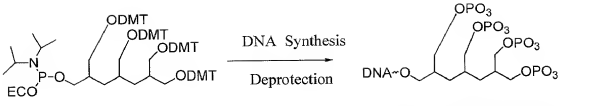

ROOC
COOR
DMTO
O
P
N
OCE
HO
O
O
X
COOH
HOOC
X
O
N
H
M
O
P
N
OCE
M = mobility modifier
X = halogen

Fig. 9



(9 negative charges per coupling)

Fig. 10

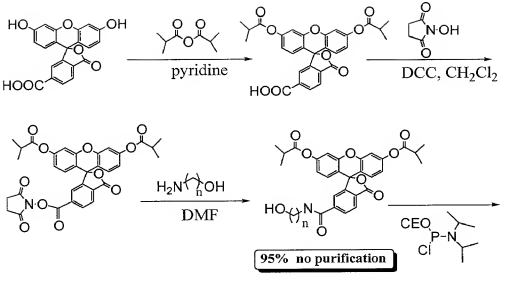

HO
OH
HOOC
pyridine
N·OH
DCC, CH2Cl2
H2N
n
OH
DMF
HO
N
n
CEO
P-N
Cl
95% no purification

Fig. 11

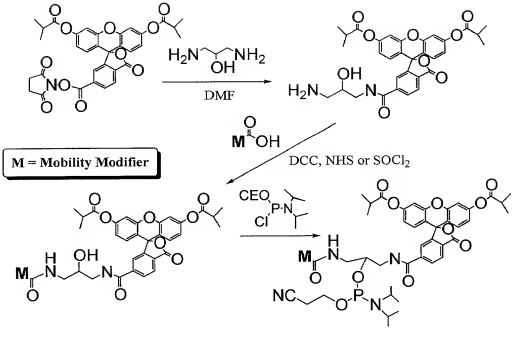


Fig. 12

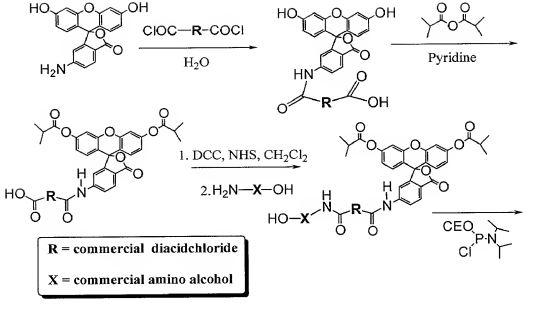

ClOC—R–COCl
H2O
Pyridine
1. DCC, NHS, CH2Cl2
2.H2N—X—OH
R = commercial diacidchloride
X = commercial amino alcohol

Fig. 13

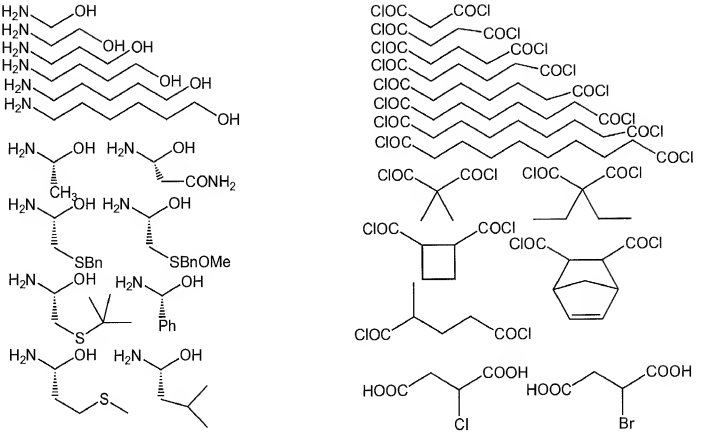

H2N OH
OH OH
OH OH
OH
CONH2
CH3
SBn
SBnOMe
Ph
S
ClOC COCl
HOOC COOH
Cl
Br

Fig. 14

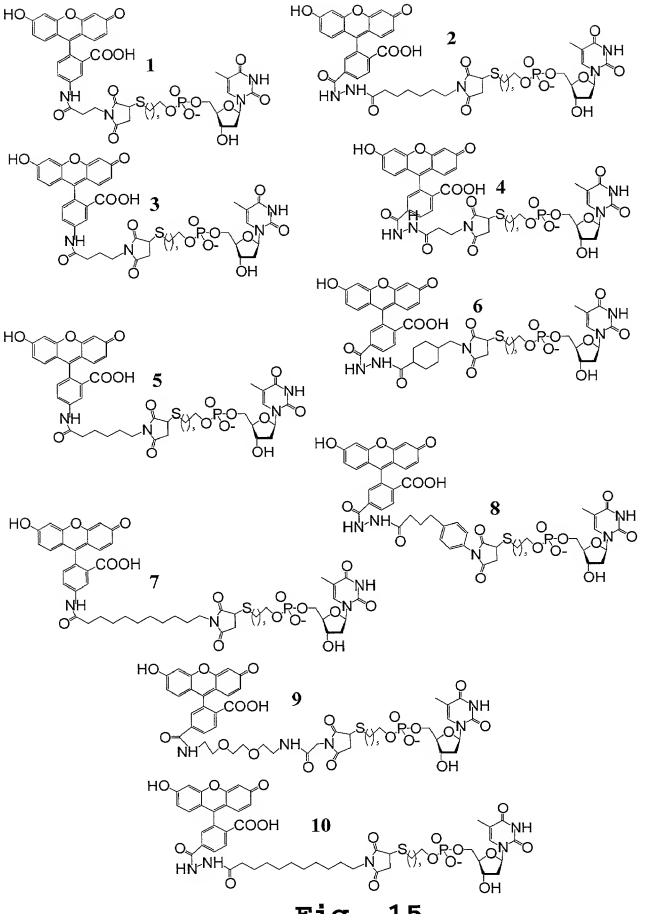


Fig. 15

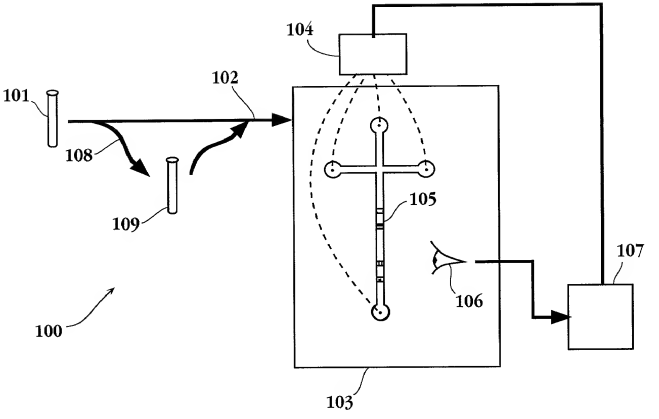


Fig. 16

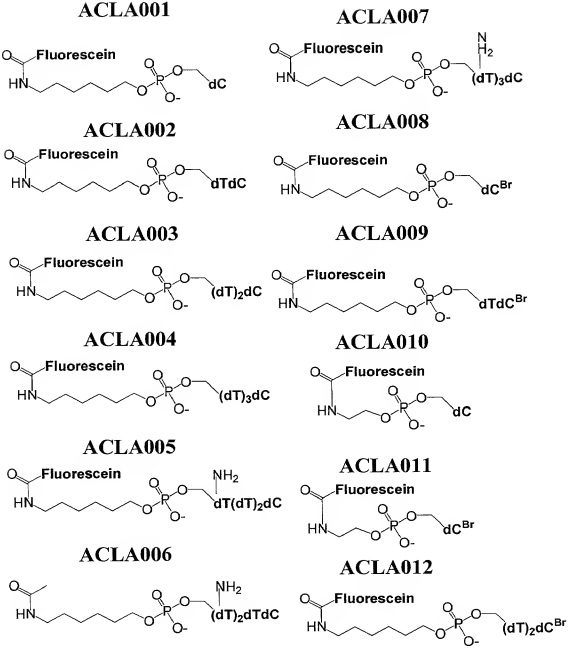

ACLA001
Fluorescein
dC
ACLA002
Fluorescein
dTdC
ACLA003
Fluorescein
(dT)2dC
ACLA004
Fluorescein
(dT)3dC
ACLA005
Fluorescein
NH2
dT(dT)2dC
ACLA006
NH2
(dT)2dTdC
ACLA007
Fluorescein
NH2
(dT)3dC
ACLA008
Fluorescein
dCBr
ACLA009
Fluorescein
dTdCBr
ACLA010
Fluorescein
dC
ACLA011
Fluorescein
dCBr
ACLA012
Fluorescein
(dT)2dCBr

Fig. 17A

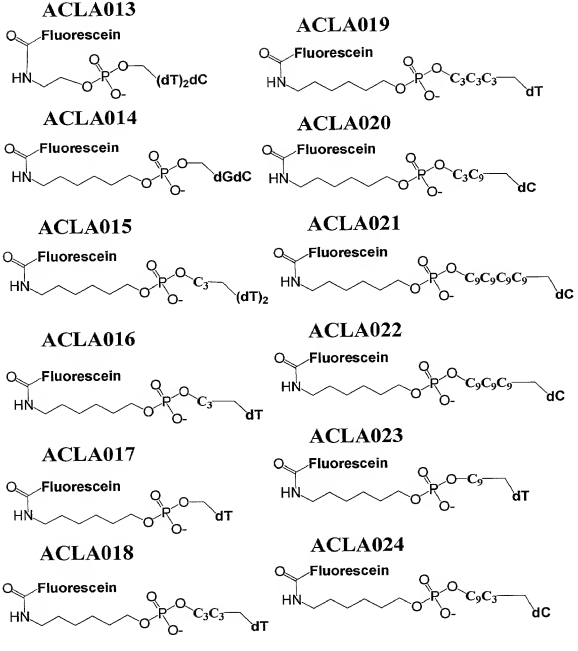

ACLA013
Fluorescein
HN
O
O
P
O
O-
(dT)2dC
ACLA019
Fluorescein
HN
O
O
P
O
O-
C3C3C3
dT
ACLA014
Fluorescein
HN
O
O
P
O
O-
dGdC
ACLA020
Fluorescein
HN
O
O
P
O
O-
C3C9
dC
ACLA015
Fluorescein
HN
O
O
P
O
O-
C3
(dT)2
ACLA021
Fluorescein
HN
O
O
P
O
O-
C9C9C9C9
dC
ACLA016
Fluorescein
HN
O
O
P
O
O-
C3
dT
ACLA022
Fluorescein
HN
O
O
P
O
O-
C9C9C9
dC
ACLA017
Fluorescein
HN
O
O
P
O
O-
dT
ACLA023
Fluorescein
HN
O
O
P
O
O-
C9
dT
ACLA018
Fluorescein
HN
O
O
P
O
O-
C3C3
dT
ACLA024
Fluorescein
HN
O
O
P
O
O-
C9C3
dC

Fig. 17B

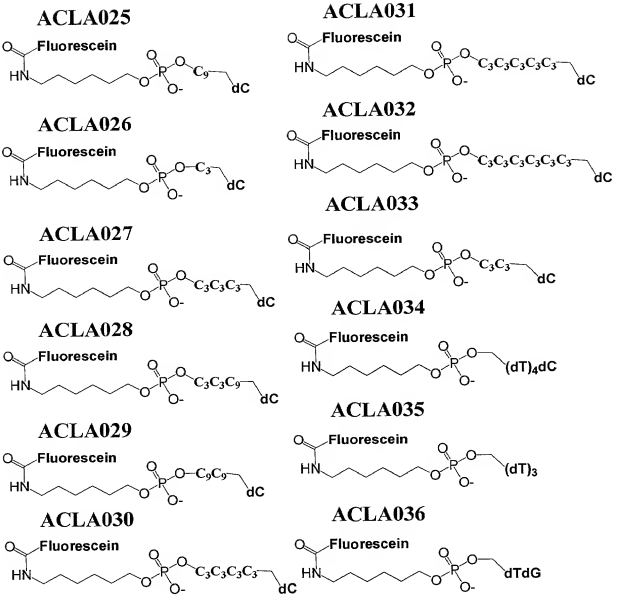
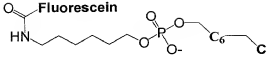
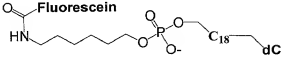

ACLA025
Fluorescein
HN
O
O
P
O-
O
C9
dC
ACLA026
Fluorescein
HN
C3
dC
ACLA027
Fluorescein
HN
C3C3C3
dC
ACLA028
Fluorescein
HN
C3C3C9
dC
ACLA029
Fluorescein
HN
C9C9
dC
ACLA030
Fluorescein
HN
C3C3C3C3
dC
ACLA031
Fluorescein
HN
C3C3C3C3C3C3
dC
ACLA032
Fluorescein
HN
C3C3C3C3C3C3C3
dC
ACLA033
Fluorescein
HN
C3C3
dC
ACLA034
Fluorescein
HN
(dT)4dC
ACLA035
Fluorescein
HN
(dT)3
ACLA036
Fluorescein
HN
dTdG

Fig. 17C

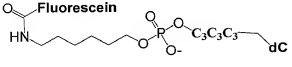
ACLA037



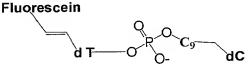
ACLA038



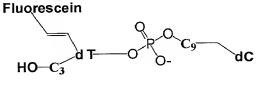
ACLA039



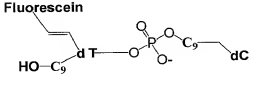
ACLA040



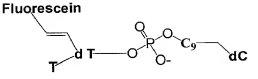
ACLA041



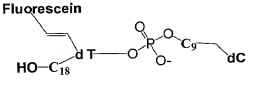
ACLA042



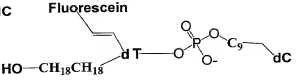
ACLA043



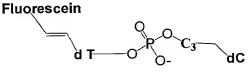
ACLA044



ACLA045



ACLA046



ACLA047

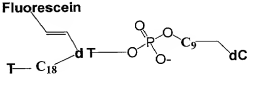


Fig. 17D

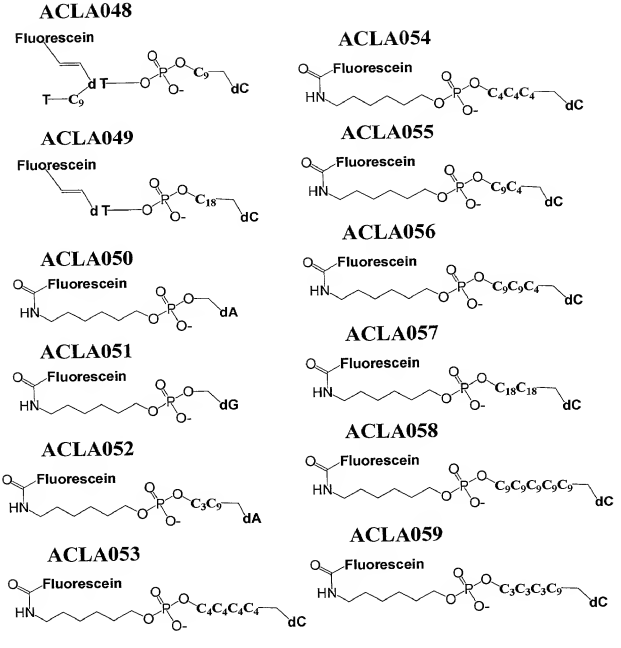

ACLA048
Fluorescein
dT
T
dC
ACLA049
Fluorescein
dT
dC
ACLA050
Fluorescein
HN
dA
ACLA051
Fluorescein
HN
dG
ACLA052
Fluorescein
HN
dA
ACLA053
Fluorescein
HN
dC
ACLA054
Fluorescein
HN
dC
ACLA055
Fluorescein
HN
dC
ACLA056
Fluorescein
HN
dC
ACLA057
Fluorescein
HN
dC
ACLA058
Fluorescein
HN
dC
ACLA059
Fluorescein
HN
dC

Fig. 17E

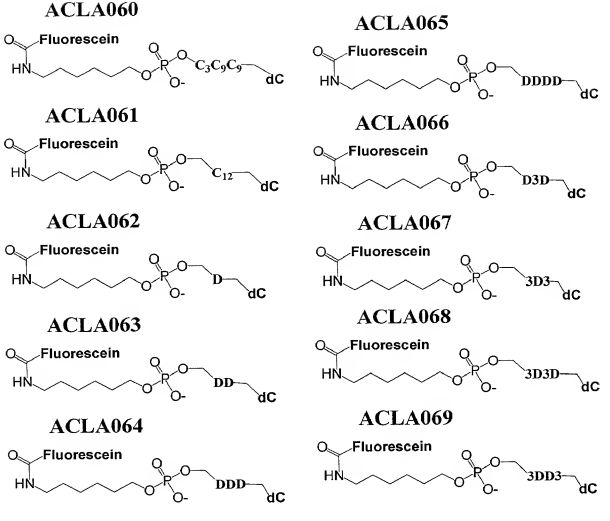

ACLA060
Fluorescein
HN
O
O
P
O-
$C_3C_9C_9$
dC
ACLA061
Fluorescein
C_{12}
dC
ACLA062
Fluorescein
D
dC
ACLA063
Fluorescein
DD
dC
ACLA064
Fluorescein
DDD
dC
ACLA065
Fluorescein
DDDD
dC
ACLA066
Fluorescein
D3D
dC
ACLA067
Fluorescein
3D3
dC
ACLA068
Fluorescein
3D3D
dC
ACLA069
Fluorescein
3DD3
dC

Fig. 17F

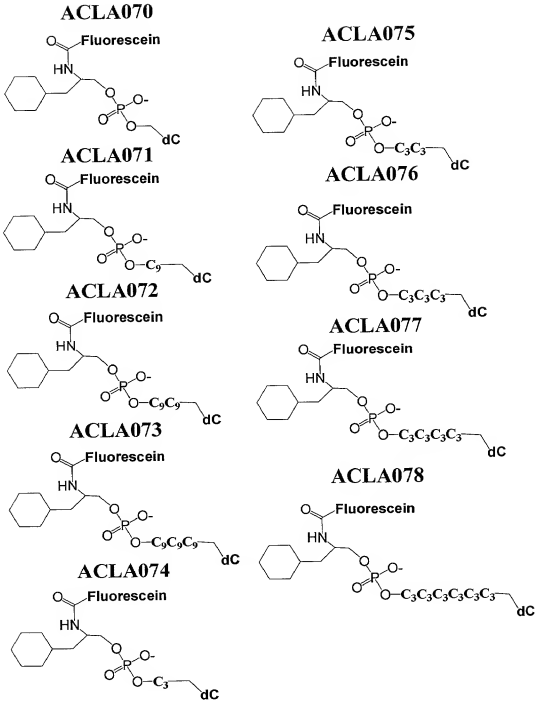
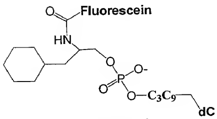
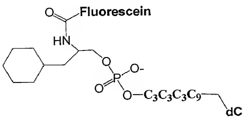

ACLA070
Fluorescein
HN
O
O-
P
O
O
dC
ACLA071
Fluorescein
HN
O
O-
P
O
O-C9
dC
ACLA072
Fluorescein
HN
O
O-
P
O
O-C9C9
dC
ACLA073
Fluorescein
HN
O
O-
P
O
O-C9C9C9
dC
ACLA074
Fluorescein
HN
O
O-
P
O
O-C3
dC
ACLA075
Fluorescein
HN
O
O-
P
O
O-C3C3
dC
ACLA076
Fluorescein
HN
O
O-
P
O
O-C3C3C3
dC
ACLA077
Fluorescein
HN
O
O-
P
O
O-C3C3C3C3
dC
ACLA078
Fluorescein
HN
O
O-
P
O
O-C3C3C3C3C3C3
dC

Fig. 17G

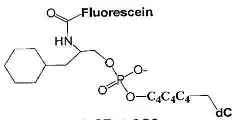
ACLA079



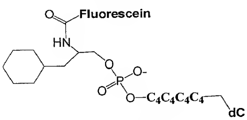
ACLA080



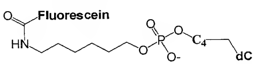
ACLA081



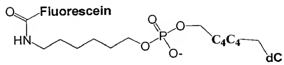
ACLA082



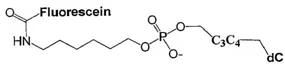
ACLA083



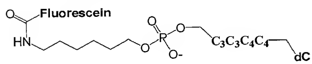
ACLA084



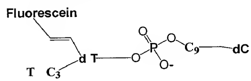
ACLA085



ACLA086



ACLA087



ACLA088

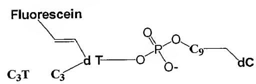


Fig. 17H

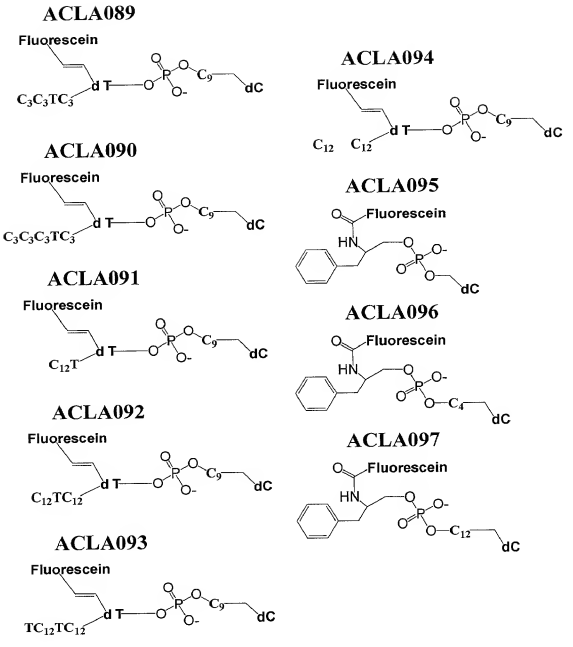

ACLA089
Fluorescein
dT
C9
dC
C3C3TC3
ACLA090
Fluorescein
dT
C9
dC
C3C3C3TC3
ACLA091
Fluorescein
dT
C9
dC
C12T
ACLA092
Fluorescein
dT
C9
dC
C12TC12
ACLA093
Fluorescein
dT
C9
dC
TC12TC12
ACLA094
Fluorescein
dT
C9
dC
C12
C12
ACLA095
Fluorescein
HN
dC
ACLA096
Fluorescein
HN
C4
dC
ACLA097
Fluorescein
HN
C12
dC

Fig. 17I

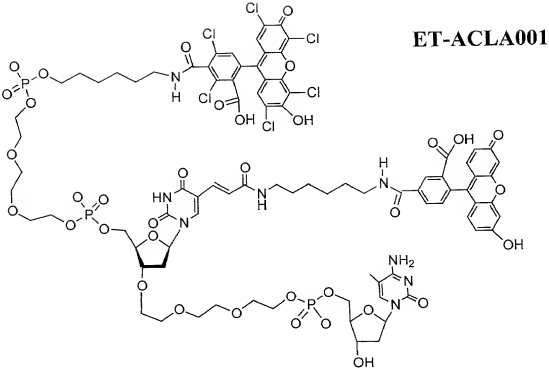


Fig. 17J

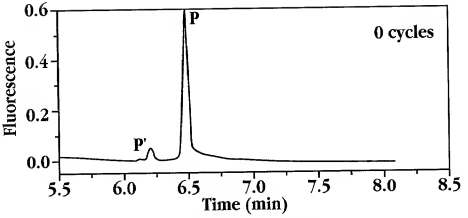


Fig. 18A

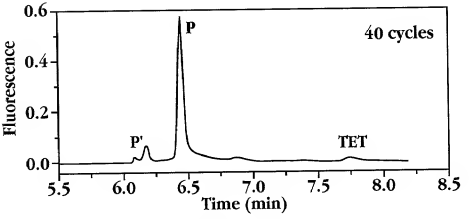


Fig. 18B

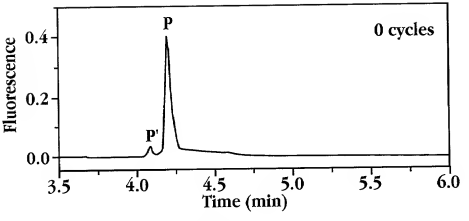


Fig. 19A

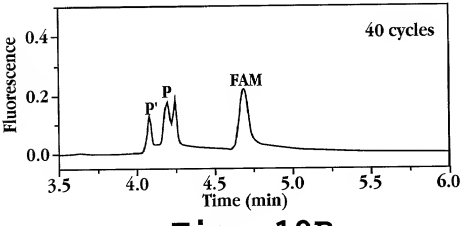


Fig. 19B

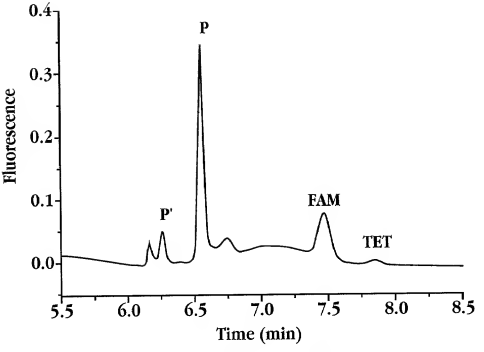

0.4
0.3
0.2
0.1
0.0
Fluorescence
P
P'
FAM
TET
5.5
6.0
6.5
7.0
7.5
8.0
8.5
Time (min)

Fig. 20

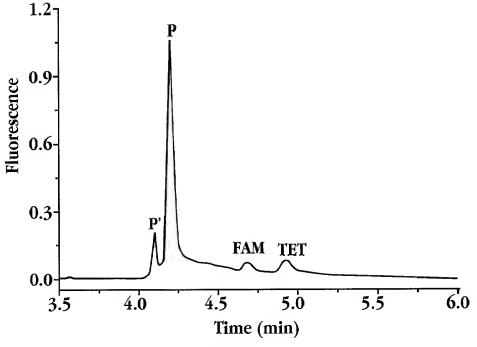

1.2
0.9
0.6
0.3
0.0
Fluorescence
P
P'
FAM
TET
3.5
4.0
4.5
5.0
5.5
6.0
Time (min)

Fig. 21

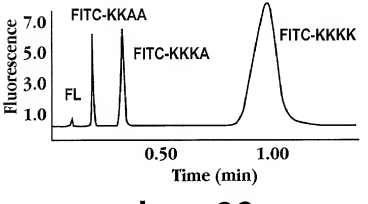

7.0
5.0
3.0
1.0
Fluorescence
FITC-KKAA
FITC-KKKA
FITC-KKKK
FL
0.50
1.00
Time (min)

Fig. 22

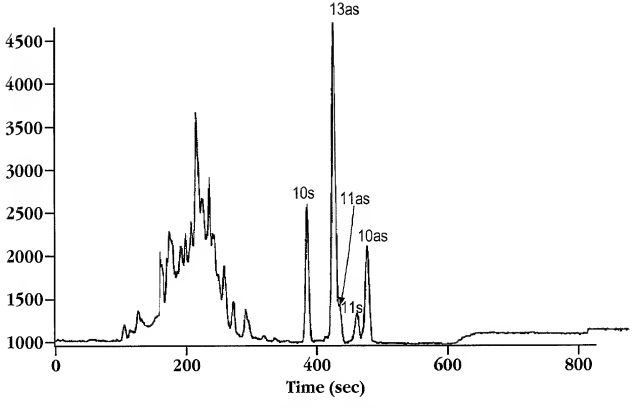


Fig. 23A

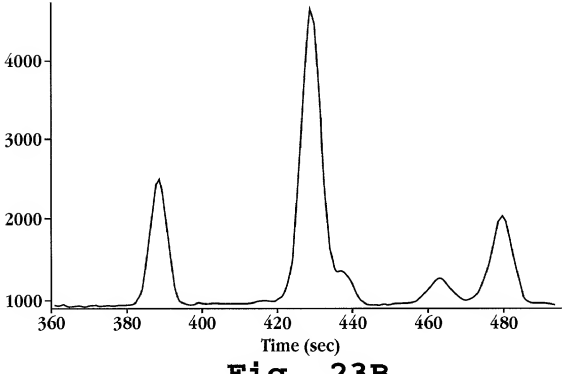


Fig. 23B

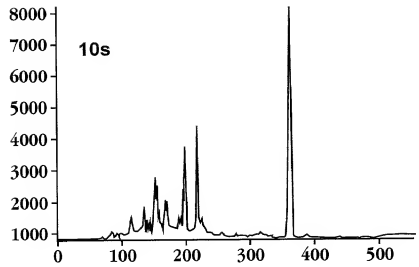


Fig. 23C

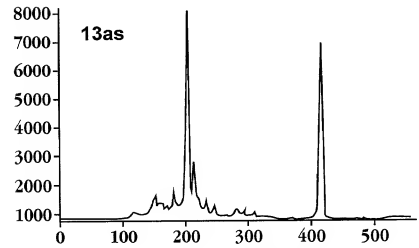


Fig. 23D

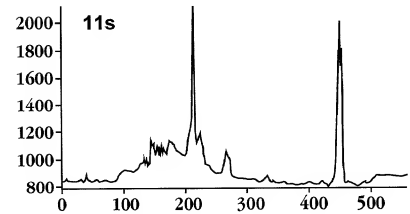


Fig. 23E

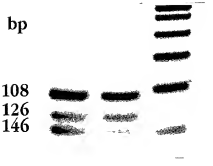


Fig. 23F

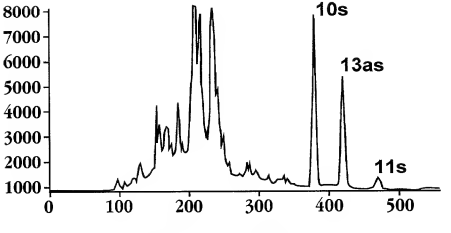


Fig. 23G

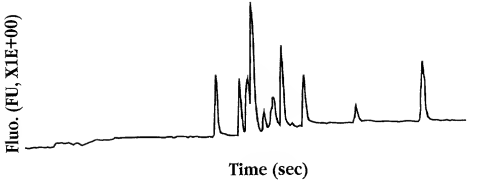


Fig. 24

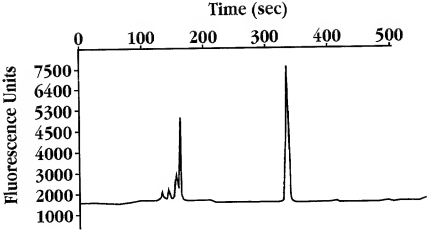


Fig. 25A

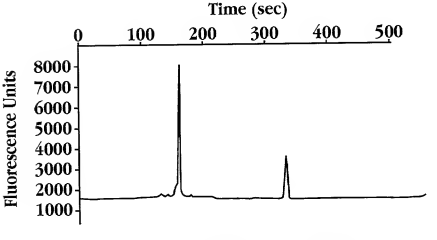


Fig. 25B

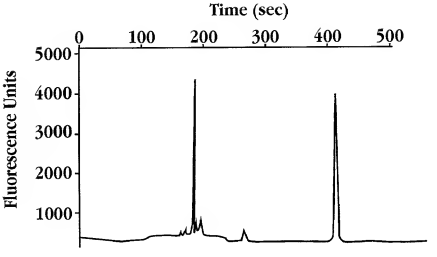


Fig. 25C

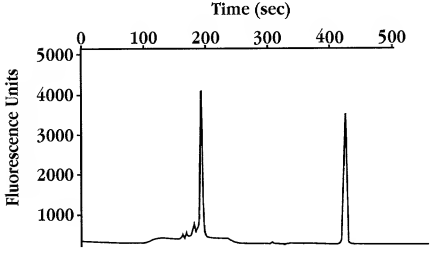


Fig. 25D

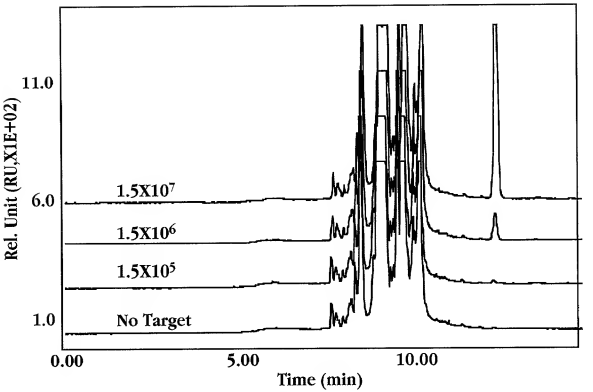

11.0
6.0
1.0
Rel. Unit (RU,X1E+02)
1.5X10^7
1.5X10^6
1.5X10^5
No Target
0.00
5.00
10.00
Time (min)

Fig. 26

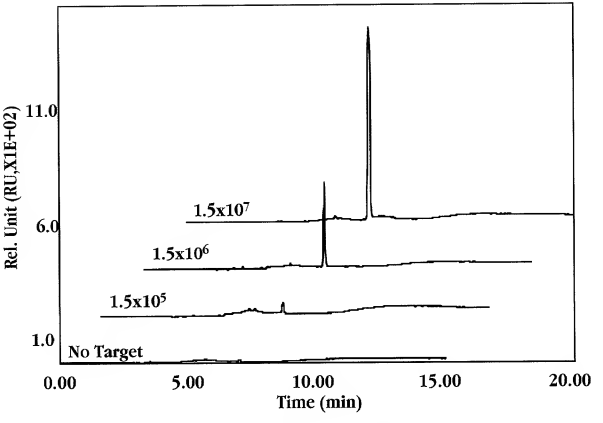

Rel. Unit (RU,X1E+02)
11.0
6.0
1.0
1.5x10^7
1.5x10^6
1.5x10^5
No Target
0.00
5.00
10.00
15.00
20.00
Time (min)

Fig. 27

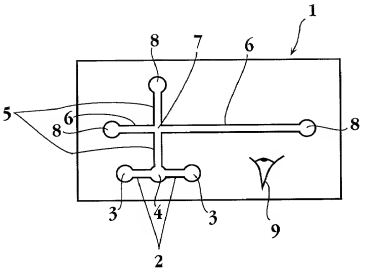


Fig. 28A

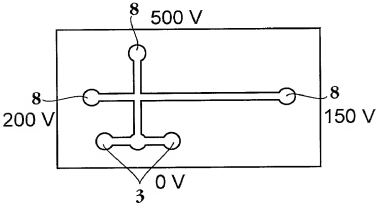


Fig. 28B

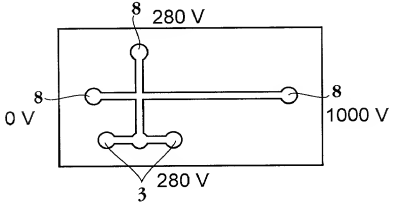


Fig. 28C

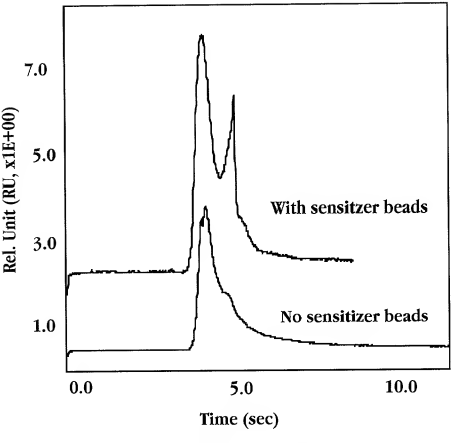

7.0
5.0
3.0
1.0
Rel. Unit (RU, x1E+00)
With sensitzer beads
No sensitizer beads
0.0
5.0
10.0
Time (sec)

Fig. 29

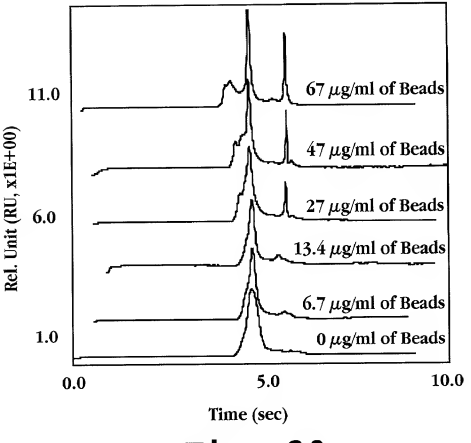

11.0
6.0
1.0
Rel. Unit (RU, x1E+00)
67 μg/ml of Beads
47 μg/ml of Beads
27 μg/ml of Beads
13.4 μg/ml of Beads
6.7 μg/ml of Beads
0 μg/ml of Beads
0.0
5.0
10.0
Time (sec)

Fig. 30

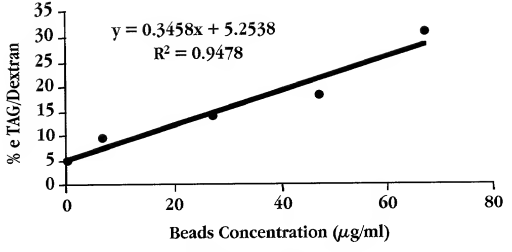

y = 0.3458x + 5.2538
R² = 0.9478
% e TAG/Dextran
Beads Concentration (μg/ml)
0
5
10
15
20
25
30
35
0
20
40
60
80

Fig. 31

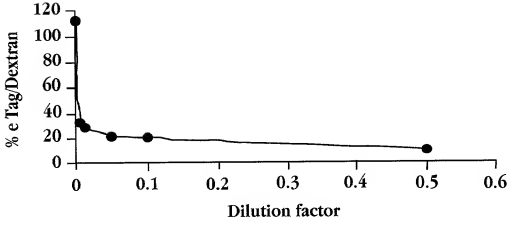

% e Tag/Dextran
Dilution factor
0
20
40
60
80
100
120
0
0.1
0.2
0.3
0.4
0.5
0.6

Fig. 32

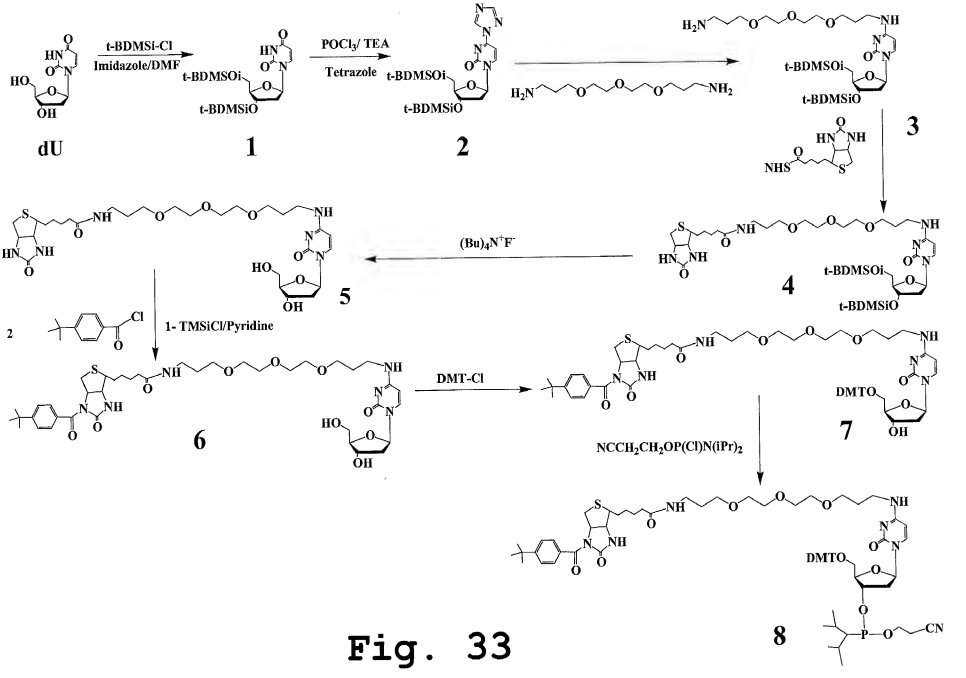

t-BDMSi-Cl
Imidazole/DMF
POCl3/ TEA
Tetrazole
dU
1
2
3
4
5
6
7
8
(Bu)4N+F-
1- TMSiCl/Pyridine
DMT-Cl
NCCH2CH2OP(Cl)N(iPr)2
t-BDMSiO
t-BDMSiOi
DMTO
NHS

Fig. 33

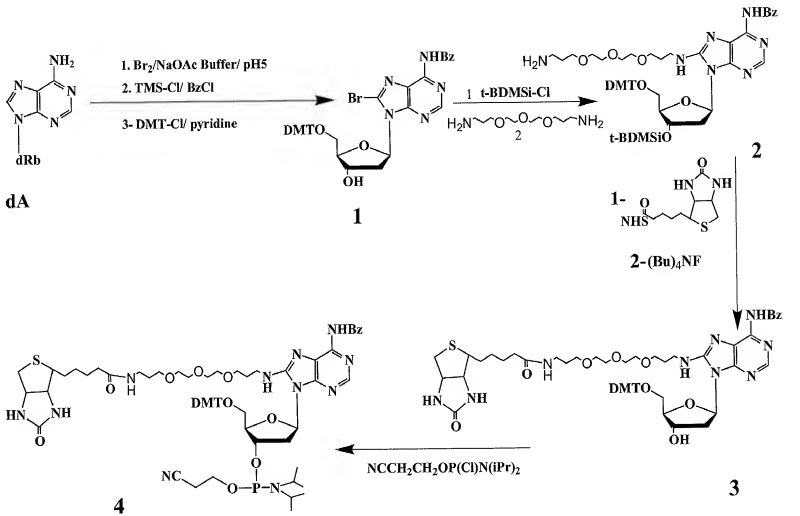

dA
dRb
1. Br2/NaOAc Buffer/ pH5
2. TMS-Cl/ BzCl
3- DMT-Cl/ pyridine
1
1 t-BDMSi-Cl
2
t-BDMSiO
2
1-
2-(Bu)4NF
3
NCCH2CH2OP(Cl)N(iPr)2
4

Fig. 34